ENVIRONMENT, SAFETY & HEALTH

SAFETY & HEALTH BULLETIN

Assistant Secretary for Environment, Safety & Health • U.S. Department of Energy • Washington, D.C. 20585

DOE/EH-0196 **Issue No. 98-1** **August 1998**

Preliminary Accident Investigation Findings from Idaho Accident

The Office of Environment, Safety and Health is currently conducting a DOE Type A Accident Investigation at the Idaho National Engineering and Environmental Laboratory (INEEL). Because of the significance of the accident and the time that it will take to complete the investigation and issue the report, I want to alert you to the need to consider potential challenges to worker safety and health.

On July 28, 1998, preparations were under way for the preventative maintenance of the electrical distribution systems in Building 648. Preparations included the electronic impairment of the high pressure C02 fire protection system and the shutdown of the electrical power system. At approximately 6 pm, coincident with the de-energization of the last 4160KV circuit breaker, the CO2 system activated. Five of the fourteen workers in the building were not able to escape the CO2 atmosphere and were subsequently retrieved by rescuers. The accident resulted in one fatality and several serious injuries. The cause remains under investigation. For those DOE facilities with high-pressure CO2 fire suppression systems, you should evaluate the applicability of the following:

The use of physical isolation (valve-out and danger tag), versus electronic impairment (defeat initiation signal at fire alarm panel).

The potential for an initiation of the CO2 fire suppression system from a spurious signal and failure to receive a 30 second evacuation alarm prior to activation.

The pre-staging of self-contained breathing apparatus near or in facilities with CO2 systems to facilitate escape or search and rescue.

The analysis of the CO2 hazard and assurance of the capability to safely escape on system activation or to accomplish search and rescue following a CO2 activation, including consideration of:

- Escape pathway obstacles (breakers, panels, lights, equipment carts, ladders, etc.)
- Locked entrance doors that would impede search and rescue
- The effects of CO2 “whiteout” conditions with zero visibility
- Normal, emergency, and exit path lighting
- Personnel protective equipment
- Personnel accountability mechanisms to determine if victims remain in the building

The training of employees on the personnel hazard of CO2 fire suppression systems, CO2 evacuation alarms, and emergency response, including the conduct of CO2 evacuation drills.

Copies of the investigation Board’s final report, which will identify the judgements of need to help prevent recurrence throughout the Department, will be available within several weeks.

Should you have any questions on this matter, please contact Glenn Podonsky (301/903-3777) or Barbara Stone (301/903-5895) of my staff.

This Safety & Health Hazards Alert is one in a series of publications issued by EH to share occupational safety and health information throughout the DOE complex. To be added to the Distribution List or to obtain copies of the publication, call **1-800-473-4375 or (301) 903-8358.** For additional information regarding the publications, call Mary Cunningham at **(301) 903-2072.**